

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113267 A2

(51) International Patent Classification⁷: **C07C 209/00**

(21) International Application Number:
PCT/JP2004/009049

(22) International Filing Date: 21 June 2004 (21.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 23 June 2003 (23.06.2003) JP
2003-177730

(71) Applicant (for all designated States except US): **NIPPON SHOKUBAI CO., LTD.** [JP/JP]; 1-1, Koraihashi 4-chome, Chuo-ku, Osaka-shi, Osaka, 5410043 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NISHIMAE, Shinji** [JP/JP]; 23-2, Katsuraminatsumicho, Nishikyo-ku, Kyoto-shi, Kyoto, 6158074 (JP). **MASUDA, Go** [JP/JP]; 9-10-106, Takashirocho, Suita-shi, Osaka, 5640024 (JP). **OKUMURA, Yasunori** [JP/JP]; 4-3-35, Fukuda, Tarumi-ku, Kobe-shi, Hyogo, 6550013 (JP).

(74) Agents: **HATTA, Mikio et al.**; Dia Palace Nibancho 11-9, Nibancho, Chiyoda-ku, Tokyo, 1020084 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

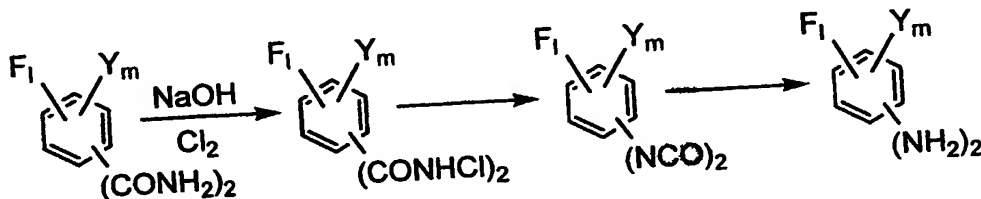
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR PRODUCTION OF FLUORINATED PHENYLENEDIAMINE



(57) Abstract: A method for the production of a fluorinated phenylenediamine is provided which comprises steps of reacting a diamide represented by the following formula with NaOCl at a molar ratio of the NaOCl to the diamide in the range of 2.0 - 6.0 and NaOH at a molar ratio of the NaOH to the diamide in the range of 1.8 - 6.0 is provided. According to this invention, the fluorinated phenylenediamine can be produced conveniently in a high yield.

WO 2004/113267 A2

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113267 A3

(51) International Patent Classification⁷: **C07C 209/58**,
211/52

(21) International Application Number:
PCT/JP2004/009049

(22) International Filing Date: 21 June 2004 (21.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-177730 23 June 2003 (23.06.2003) JP

(71) Applicant (for all designated States except US): **NIPPON SHOKUBAI CO., LTD.** [JP/JP]; 1-1, Koraihashi 4-chome, Chuo-ku, Osaka-shi, Osaka, 5410043 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NISHIMAE, Shinji** [JP/JP]; 23-2, Katsuraminamitsumicho, Nishikyo-ku, Kyoto-shi, Kyoto, 6158074 (JP). **MASUDA, Go** [JP/JP]; 9-10-106, Takashirocho, Suita-shi, Osaka, 5640024 (JP). **OKUMURA, Yasunori** [JP/JP]; 4-3-35, Fukuda, Tarumi-ku, Kobe-shi, Hyogo, 6550013 (JP).

(74) Agents: **HATTA, Mikio** et al.; Dia Palace Nibancho 11-9, Nibancho, Chiyoda-ku, Tokyo, 1020084 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

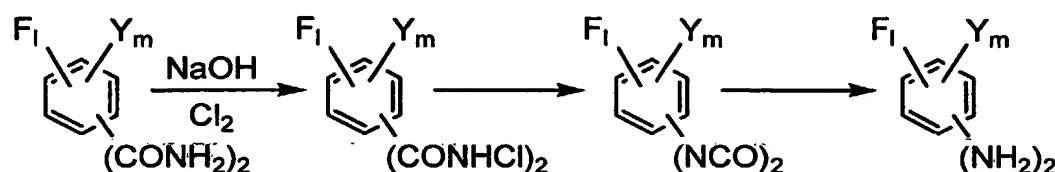
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
24 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR PRODUCTION OF FLUORINATED PHENYLENEDIAMINE



(57) Abstract: A method for the production of a fluorinated phenylenediamine is provided which comprises steps of reacting a diamide represented by the following formula with NaOCl at a molar ratio of the NaOCl to the diamide in the range of 2.0 - 6.0 and NaOH at a molar ratio of the NaOH to the diamide in the range of 1.8 - 6.0 is provided. According to this invention, the fluorinated phenylenediamine can be produced conveniently in a high yield.